

Practise

1. Describe the pattern in each sequence. Give the next two terms.

a) 15, 10, 5

b) -6, -10, -14

c) $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$

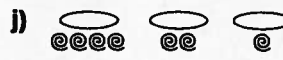
d) $\frac{12}{5}, 2, \frac{8}{5}$

e) 3, -6, 12, -24

f) -96, -48, -24

g) 100, 80, 65, 55

h) 3, 3, 6, 18, 72



2. a) Build a sequence of numbers.

b) Describe the process you used to build the sequence.

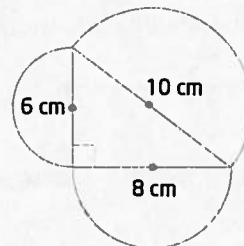
c) Trade your sequence with a classmate. Find the pattern.

Connect and Apply

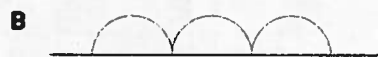
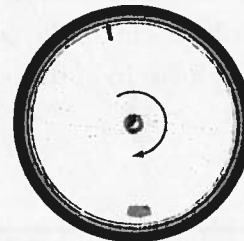
Making Connections

You worked with the formula for the area of a circle in grade 8.
 $A = \pi r^2$.

3. Refer to the Example. Is there a relationship between the areas of semicircles placed on each side of a right triangle? Use the diagram to help you explain your answer.



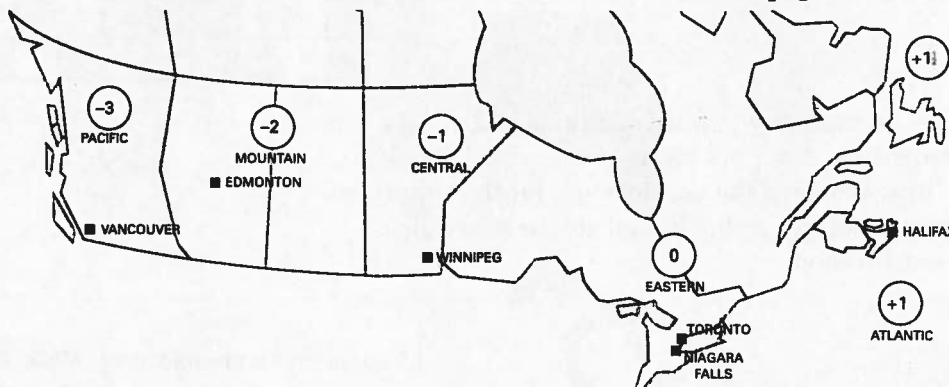
4. A light is attached to the circumference of a wheel. As the wheel rolls along the road, which of the following diagrams represents the path of the light? Explain your reasoning.



5. a) Explain how the time zone map uses integers to determine the time in another time zone.

b) If it is 3:00 P.M. in Toronto, what time is it in Halifax?

c) If it is 2:30 A.M. in Vancouver, what time is it in Winnipeg?



6. The diagram illustrates the meaning of fractions.

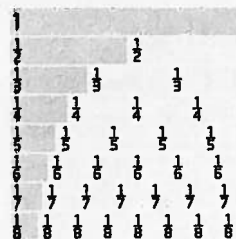
a) Explain how to use the diagram to illustrate which is greater,

$$\frac{3}{7} \text{ or } \frac{4}{8}.$$

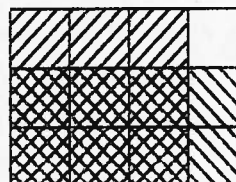
b) How could you use the diagram to illustrate how to add $\frac{1}{2} + \frac{1}{3}$? Explain.

c) How many rows would you need to illustrate $\frac{1}{3} + \frac{1}{4}$? Explain.

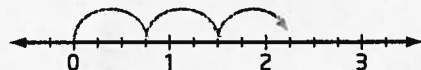
d) Describe a pattern or trend in the dark blue bars.



7. a) Explain how the diagram illustrates the fact that $\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$.



b) What product is modelled by the number line diagram?



8. The diagrams illustrate a rule for adding odd numbers.

a) Describe the rule.

b) Verify your rule for the fifth and sixth diagrams.

c) Use your rule to find the sum of the odd numbers from 1 to 99.

d) Use your rule to find the sum of the odd numbers from 150 to 600.



Extend

9. Each three by three square, each row, and each column must contain each of the numerals 1 through 9 only once. Copy and complete this Sudoku puzzle. Describe the problem solving process that you used.

		9		7	8			2
	7	5					3	1
8		3			1		7	
	6			2		8		4
	3	8	1		4		6	7
9		2			7		3	5
		1		3	2	5		6
	5	4			6	9		8
	8			4	5		1	

10. In a factory, there are 10 assembly points equally spaced along a 9-m section of an assembly line. A supply bin is to be located 5 m away from the assembly line. Where is the best location for the supply bin so that the workers will have to go the least distance to get their supplies? Justify your solution.